

FalconSAT-2

Structural Verification  
Report

Appendix I  
Mass Properties Report for the Flight Model

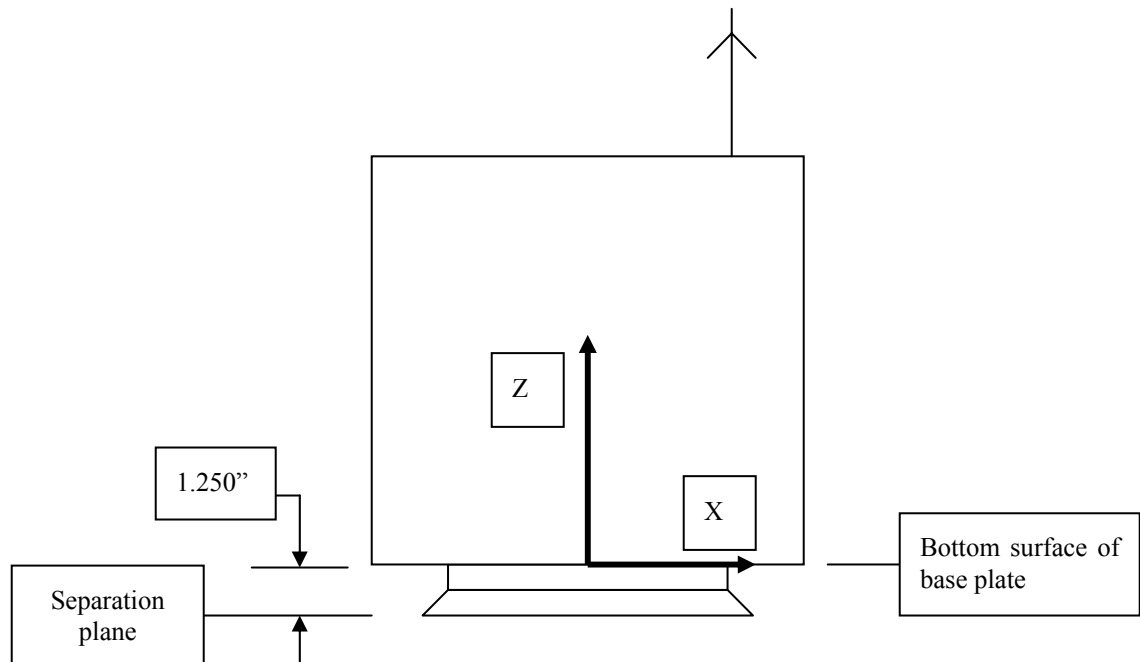
LtCol Jerry Sellers  
Oct 28, 2002

### Summary of Results:

Table 1 summarizes the results of mass-properties measurement. Figure I-1 shows the reference origin and coordinate system.

**Table I-1. Measured Mass Properties of the Flight Model.** The reference origin is defined in Fig. I-1.

	Measured	Predicted	Shuttle Constraint
Weight (lb)	43.25	43.09	Less than 150
Mass (lb-s <sup>2</sup> /in)	0.1120	0.1116	Less than 0.3885
Center of Gravity: X (in.)	-0.019"	-0.007"	Within $\pm 0.25$ "
Center of Gravity: Y (in.)	-.010"	-.017"	Within $\pm 0.25$ "
Center of Gravity: Z (in.)	4.924"	4.895"	Less than 9.00"
Ixx (lb-in-s <sup>2</sup> ) about c.g.	3.496	3.445	Measured
Iyy (lb-in-s <sup>2</sup> ) about c.g.	3.640	3.557	Measured
Izz (lb-in-s <sup>2</sup> ) about c.g.	3.071	2.892	Measured



**Fig. I-1. Origin of Coordinate System Used for Reporting Center of Gravity.**

### Conclusions:

The mass properties of the FM have been measured with suitable accuracy and are within NASA's constraints.